

Exhibit 4

February 12, 1998

20-McIntosh Drive  
Poughkeepsie, N.Y. 12603

Fax 914 4712064

To: D.C. Lin  
Patent Dept.  
TSMC  
cc: Tessie Wang

From: George O. Saile

**Subject: Novelty Search at the US Patent Office - TSMC97-542 - Inventor Name: S.L.Shue Title:  
A NOVEL PLANARIZATION METHOD OF COPPER DAMASCENE.**

The following is the result of my Prior Art Subject search at the US Patent Office.

The invention shows a planarization method of copper damascene with at least the following 2 key steps: (a) reverse tone photo for large area and (b) electroplating by reverse current to remove Cu from large surface.

US 5,602,423 (Jain) shows a damascene process using CMP, and electroplating. However, this reference differs from the invention.

US 5,567,300 (Data) shows a method of electrochemically (with CMP) Cooper interconnects.

US 5,346,584 (Nasr) shows a STI planarization method using a etch back process with a reverse tone filler mask. However, this reference differs from the invention.

US 5,494,857 (Cooperman) shows a STI planarization method using a etch back process with a reverse tone mask and CMP process.

C.Y. Chang, S.M. Sze, in *ULSI Technology*, by The McGraw-Hill Company, INC. copyright 1997, pp. 446-447, discusses dual damascene techniques.

In summary, while the patents appear close to the invention, there appears to be patentable differences. I shall begin preparation of the patent application. If you wish, you can order the reference patents and let the inventors review them, but it is not necessary.

With best regards,

George O. Saile

Exhibit 5

April 23, 1998

20 McIntosh Drive  
Poughkeepsie, N.Y. 12603

Fax 914 4712064

To: D.C. Lin  
Patent Dept.  
TSMC  
cc: Tessie Wang

From: George O. Saile

Subject: Novelty Search at the US Patent Office - TSMC98-021 Merged with T97-542. Part 2 of 2 -  
Appended Search report - S.M Jang

The following is the result of my Prior Art Subject search at the US Patent Office.

The invention shows a damascene Al or Cu structure formed by a (relaxed) reverse tone mask and CMP planarization.

US 4,954,459 (Avanzino et al.) shows a planarization technique using a reverse mask and etch back only technique.

US 4789648 (Chow) *Method for producing coplanar multi-level metal/insulator films on a substrate and for forming patterned conductive lines simultaneously with stud vias* - shows a method for forming metal interconnects that uses a CMP of metal (W or Al alloy) layers.

US 4702792 (Chow) *Method of forming fine conductive lines, patterns and connectors* - discloses a method comprises: a polymeric material is applied to a substrate; the polymeric material is patterned to form openings through; conductive material is applied to the patterned polymeric material; and excess conductive material is removed from the exterior major surface of the polymeric material using chemical-mechanical polishing, to expose at least the exterior major surface of the polymeric material.

US 5,693,563 (Teong) shows a method for forming a Cu connector using a CMP process.

In summary, reverse tone masks and CMP processes appear to be known for planarizing trench isolations. The patents appear close to the invention, but do not show the exact details of the invention. I shall begin preparation of the invention, but it should be understood that there is a question of obviousness and the patent office may object to this invention. If you wish you can order the reference patents and let the inventors review them, but it is not necessary.

With best regards,

George O. Saile

Exhibit 6

May 1, 1998

20 McIntosh Drive  
Poughkeepsie, N.Y. 12603

FAX: 914 4712064

To: Tessie Wang  
Patent Department  
TSMC

FROM: George O. Saile

Subject: Patent Application Reference TSMC97-542/98-021  
Inventors: S.L. SHUE, S.M. JANG

Please have the Inventor review the enclosed DRAFT Patent Application. He should make all changes he sees fit, answer all of my questions, and fill in the blanks. He should review the Drawings carefully for any errors AND ADDITIONS. This is the time when we have the best opportunity to make the description of the invention complete and correct.

Please return to me the corrected description and Drawing as soon as you can.

With best regards,



George O. Saile